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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/644,846

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Yoshinori Miyaki

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01/25/2005

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EXAMINER

THAI, LUAN C

ART UNIT

PAPER NUMBER

2829

DATE MAILED: 01/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

AK

Office Action Summary

Application No.

10/644,846

Applicant(s)

MIYAKI ET AL.

Examiner

Luan Thai

Art Unit

2829

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 32 and 34-43 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 32 and 34-43 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☒ Certified copies of the priority documents have been received in Application No. 09/978,708.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____ | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

This Office action is responsive to the amendment filed 12/09/04.

Claims **32 and 34-43** are pending in this application.

Claims **1-31 and 33** have been canceled.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 32, 34, 36-37, 39-40 and 43 are rejected under 35 U.S.C. 102(e) as being anticipated by Tanaka et al (6,265,762 of record).

The figures and reference numbers referred to in this office action are used merely to indicate an example of a specific teaching and are not to be taken as limiting.

Regarding claim 32, 34, 36-37, 39-40 and 43, Tanaka et al disclose (see specifically figures 1-7) a semiconductor device comprising: a plurality of inner leads (4) extending around a semiconductor chip (10); a thin sheet-shaped insulating member (7) (Col. 5, lines 43+) supporting the semiconductor chip and joined to an end portion of the respective inner leads; a conductive wire (13) for connecting surface electrodes (11) of the semiconductor chip and the inner leads corresponding thereto; a seal portion (14) in

which the semiconductor chip (10), the wire (13), and the insulating member (7) are resin-sealed; and outer leads (5) linked the inner leads (4) and exposed along four sides of a lower surface of the seal portion (14) and to the lower surface of the seal portion (14), wherein an arrangement pitch of the surface electrodes (11) of the semiconductor chip (e.g., 80 μm to 100 μm , Col. 6, lines 56-57) is less than a minimum value of a tip pitch between the inner leads (4) adjacent to each other (e.g., 180 μm to 220 μm , Col. 6, lines 41-42).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 35, 38 and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka et al (6,265,762 of record) in view of Newman (5,068,708 of record).

The figures and reference numbers referred to in this office action are used merely to indicate an example of a specific teaching and are not to be taken as limiting.

Regarding claims 35, 38 and 42, Tanaka et al disclose the claimed invention as detailed above except for the insulating member being a glass containing epoxy substrate containing alumina particles (e.g., ceramic substrate).

Newman while related to a similar chip on tape design teach an insulating member being a glass containing epoxy substrate, which contains alumina particles (e.g.,

ceramic substrate) (Col. 3, lines 23+). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use glass-containing epoxy with alumina particles to form the insulating member in Tanaka et al device, since such material is commonly used in semiconductor art for making the insulating supported member, as taught by Newman, and such applying is held to be within the ordinary designing ability expected of a person skilled in the art.

5. Claim 41 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka et al (6,265,762 of record) in view of Templeton et al (5,457,340 of record).

The figures and reference numbers referred to in this office action are used merely to indicate an example of a specific teaching and are not to be taken as limiting.

Regarding claim 41, Tanaka et al disclose the claimed invention as detailed above except for the adhesive layer being disposed only at an inner lead jointing portion on the surface of the insulating member.

Templeton et al while related to a similar semiconductor structure design discloses (see specifically figure 1) the adhesive layer (105) being disposed only at an inner lead joining portion on the surface of the insulating member for bonding the inner lead to the insulating substrate. It would have been obvious to one of ordinary skill in the art at the time the invention was made to recognize that combining Templeton et al's teachings with Tanaka et al's invention would have been beneficial because Templeton et al's teachings help to minimize the adhesive layer used for bonding the inner leads to the insulating substrate; and thus, to reduce the manufacturing cost.

Response to Arguments

6. Applicant's arguments filed on 12/09/04 have been fully considered but they are not persuasive regarding claim 32. Specifically, Applicant argues that Tanaka does not teach: "*an arrangement pitch of the surface electrodes is no more than one half as great as a minimum of a tip pitch between the inner leads that are adjacent to each other*" (page 11, last line 1, and page 12, lines 1- 3, of the Remarks), as recited in independent claim 32.

The Examiner disagrees with Applicant's argument since the claimed limitations in independent claim 32 are different from the statement above. In fact, claim 32 recites that "...wherein an arrangement pitch of said surface electrodes of said semiconductor chip is 1/2 as much as **or less than** a minimum value of a tip pitch between said inner leads adjacent to each other." And Tanaka does teach that an arrangement pitch of the surface electrodes (11) of the semiconductor chip (10) is about **80 μm to 100 μm** (Col. 6, lines 56-57) and a tip pitch between the inner leads (4) adjacent to each other is about **180 μm to 220 μm** (Col. 6, lines 41-42); thus, Tanaka teaching is clearly read on the claimed limitation of "...wherein an arrangement pitch of said surface electrodes of said semiconductor chip is **less than a minimum value of a tip pitch** between said inner leads adjacent to each other", as recited in independent claim 32.

Conclusion

7. Applicant's amendment filed on 12/09/04 have been fully considered but they are not persuasive (regarding claim 32) and deemed to be moot in view of the new grounds of rejection (regarding claims 34-43) because changing the dependency of claims 34-43 has changed the scope of these claims and raised new issues that would require further consideration and/or search. Therefore, THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Luan Thai whose telephone number is 571-272-1935. The examiner can normally be reached on 6:45 AM - 4:15 PM, Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nestor Ramirez can be reached on 571-272-2034. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Luan Thai

Primary Examiner

Art Unit 2829

January 19, 2005